17/5

BRITISH HONDURAS

IMPERIAL MYCOLOGICAL
11 FEB. 1938
INSTITUTE

ANNUAL REPORT OF THE DEPARTMENT OF AGRICULTURE FOR THE YEAR ENDING 31 DECEMBER, 1936.

BRITISH HONDURAS

CONTENTS.

Staff List .....

Report of Agricultural Officer—

Section I—Agriculture in General .....

Section II—Work on Department of Agriculture .....

Section III — Finance .....

Section IV—Legislation .....

Reports of District Agricultural Officers—

Section V.A. Stann Creek .....

Section V. B. Corozal .....

Section V. C. Punta Gorda .....

APPENDIX A.

Rainfall of the Colony, 1936 .....

TABLES.

Tables referred to in the text are to be found at the end of the Report.

Table I—section I, paragraph 6 .....see Table I.

Table II—section I, paragraph 14 ..... see Table II.A.

Table III—section I, paragraph 23 ..... see Table III.

section I, paragraph 28 ..... see Table IV.

Table I.—section V.C., paragraph 28 (iii) .....see Table I.A.

Table II—section V. C., paragraph 31 ..... see Table II.

Agricultural Produce Exports ..... see Table V.

ADDRESSES of OFFICERS.

Agricultural Officer, Belize ..... Box 149, Belize

Asst. Agricultural Officer, Stann Creek.....Agric. Station, Stann Creek

Asst. Agricultural Officer, Corozal ..... Agric. Station, Corozal

Agricultural Instructor, Punta Gorda ..... Rice Expt. Station, Punta Gorda

STAFF LIST.

Agricultural Officer ..... H. P. Smart, B.Sc. Agr. (S.Af.)., A.I.C.T.A.

Assistant Agricultural Officers ..... R. A. Kitching, J.P., C.D.A. (Edin).
H. L. Manning, Dip. Agr. (I.C.T.A.).

Agricultural Instructor (Rice Officer) ..... D. D. Haynes

Foremen, Agric. Station, Stann Creek ..... E. W. Francis
A. E. Wyatt

Foreman, Agric. Station, Corozal ..... F. F. Orio (on probation)

Temporary Local Asst. Rice Expt. Station ..... C. D. W. Atkins

Secretary, Board of Agriculture ..... W. A. Grant

CLERICAL STAFF.

W. A. Grant ..... Chief Clerk, Head Office, Belize

A. S. Longsworth ..... Junior Clerk, Head Office, Belize

G. T. McKesey ..... Clerk, Agric. Station, Stann Creek

Miss S. I. Jex ..... Typist, Head Office, Belize

Win. A. Grant ..... Messenger, Head Office, Belize

STAFF MOVEMENTS.

R. A. Kitching, Asst. Agricultural Officer, proceeded on oversea's leave on July 16th.

E. W. Francis, appointed Inspector of Crown Lands, Surveyor General's Department with effect from 14th February.

A. E. Wyatt, appointed Foreman, Agric. Station, Stann Creek (on probation) with effect from 1st March.

C. D. W. Atkins, appointed temporary Local Asst. Rice Station (on probation, with effect from 1st May).

SECTION I.

AGRICULTURE IN GENERAL.

Weather Conditions.

1. Over the whole Colony the year was exceptionally wet, so much so that general crop production was seriously affected. In the North January and February, usually dry months, were very wet, the rainfall being 4 inches more than the monthly average. Nevertheless, conditions on the whole were favourable for the planting of short term annual crops, such as vegetables. During the rainy season proper considerable losses were caused by the hot dry spells following rainy periods. In the south this condition particularly affected the rice crop and as many as three resowings had to be made. Very heavy rains in July damaged a proportion of the fields of young rice and heavy rains at harvest time spoilt a considerable amount of padi.

2. To determine the best times for planting various crops in the North of the Colony an attempt is being made to correlate soil temperature and rainfall with field results. Interesting and useful results have been obtained during the year.

GENERAL SITUATION.

3. Two consecutive years of unfavourable weather conditions, 1935 being exceptionally dry and the year under review very wet, have somewhat damped enthusiasm for agriculture. Added to this the improved conditions in the mahogany and chicle industries attracted large numbers of potential farmers away from agriculture who in the previous lean years had settled on the land. It would appear, therefore, that the attractions offered as mahogany and chicle labourers are better than those to be had by following agriculture for a livelihood. As a result it may be said that agricultural development in the Colony will not assume any large proportions so long as the forest industries can give employment, or, perhaps, until the population of the Colony is greatly increased. Nevertheless, the numbers turning to agriculture are increasing year by year and there is a big demand for land. Jamaican peasants are coming to the Colony in increasing numbers and in nearly every case they take up land.

4. The matter of export crops suitable for the small holder or peasant is yet to be solved. While there is plenty of scope for the production of foodstuffs for local consumption, the growth of which can be highly remunerative, yet the production of products suitable for export is most desirable. Only by the production of both classes of commodities can agriculture be soundly established. At the moment the banana is the only early maturing crop suitable for export which carries with it a certain and remunerative market. In spite of the standard of cultivation of bananas being very low throughout the whole Colony the returns to the peasant growers are good, although in a strictly commercial sense they are extremely poor. Returns are, however, sufficiently attractive to make banana growing the sole aim of the greater bulk of planters irrespective of type of soil, climate and transportation factors. The disregard of these factors can only in course of time bring about a severe reduction in the output of bananas resulting, amongst other things, in the waste of much otherwise valuable land. Banana growing, as practised locally, is therefore not actually favourable to agricultural development, its permanency being indefinite.

5. The Department is making every effort to find satisfactory short term crops possessing export value, and money crops, as distint from food crops, that can be disposed of locally. In the latter class may be mentioned tobacco with which the Department is experimenting in the North. There is a large local market the supply of which will take many years to fill. In the case of other crops in this class the main difficulty is the small demand requiring only a few growers to flood the market. As an example the Broom Industry in Corozal may be quoted. A matter of a few acres can supply the needs of the broom-maker for a year or so. He in turn can find a market for only a small

number of brooms not because of poor quality but because local consumers appear to perfer the imported article although more expensive and very little superior. This touches on one of the greatest obstacles to be overcome in fostering agriculture in the Colony, namely, the idea that locally grown produce or manufactured articles are much inferior to those imported. There is still a prejudice against locally grown rice in spite of the fact that this same rice has been grown and consumed in the Colony for generations. Hand milled rice, as produced in small quantities by the farmers and sold at the market, regularly commands a higher price than the shop sold imported article. When, however, this same rice is milled by machinery and put on the market by the Board of Agriculture it is often pronounced inferior to the imported rice.

CONDITION OF CHIEF AGRICULTURAL CROPS.

6. BANANAS.—The year's output reached the third highest in the history of banana growing in the Colony. Records show a fluctuating output of from 10,000 bunches in 1880 to 725,000 in 1906, increasing to 886,800 in 1917. Apart from these two years production has in no year exceeded 670,000 bunches. An examination of Table I will give an idea although incomplete as to the distribution of production. It will be seen that the most important centres of production are Stann Creek, Belize and Punta Gorda. In the case of Belize it must be pointed out that fruit grown in the Cayo District, Corozal District and the area round Northern River as well as fruit grown on the Sibun River and in the Manatee section are included. The nearest producing area to Belize is distant some twenty miles. Similarly with Punta Gorda fruit produced in the area between Rio Grande on the north and the Sarstoon River on the south is included.

7. Banana growing continues to be the one aim and standby of all classes of planter without regard to limiting factors of soil, climate and transportation. In spite of this, production has increased beyond all expectations. Whether this will be maintained is a difficult matter to gauge accurately. It is felt, though, that because of (*a*), the spread of Panama Disease in the Toledo Settlement, where two years ago there were only a few sporadic cases, and its spread in the Temash River area ; (*b*), the general unsuitability of lands north of Belize for prolonged banana production and (*c*), the fact that in Stann Creek very little land remains that has not become badly infected with Panama Disease, it is only a matter of a short time—perhaps only three or four years—when production will drop to a figure similar to that of 1933.

8. Provided considerable care is exercised in preventing the introduction of diseases, and in the use of careful methods of cultivation there should be a good future for the new lands being opened up on the Belize River from Big Falls westward to Cayo. The riverine soils in this region are possibly the only soils in the Colony that approach what are usually considered first class for banana growing. With the river improvement work now in hand it is to be hoped that the almost unsurmountable navigational difficulties will be solved.

9. The idea that greater production can be accomplished in the Northern two districts is misleading. It has been estimated that in the vicinity of Corozal the area contained within a radius of about five miles of the town, there exists only a maximum of 100 acres of land capable of growing bananas. This acreage is made up of small 'pockets' of good soil scattered over the whole area. Excellent vegetative growth is made but fruiting is extremely poor.

10. Towards the end of the year the presence of "Sigatoka" leaf disease (*Cercospora musae*) in the Colony was definitely determined. The main centre of infection was found to be confined to the Toledo Settlement, but sporadic cases were reported from Monkey River, Temash and Stann Creek. The cases in Stann Creek were confined to one farm only. The spread of this disease in the Toledo settlement has been singularly slow.

11. During the year the United Fruit Company renewed their offer to make contracts with growers for the purchase of fruit. In spite of much criticism of the terms and conditions, however strict, growers cannot fail to gain by accepting.

12. COCONUTS AND COPRA.—A vast improvement took place in the export trade of these two commodities. There was a better feeling in the trade and demand and prices increased appreciably. The greatest improvement took place in the demand for copra. Due to proximity Mexico finds this Colony a good and cheap source of supply. The quality of the copra produced on the whole is low. This is probably due to the fact that all the copra produced is sun dried and that little or no provision is made to protect it from rain and dew during drying and that little selection of nuts is made. The introduction of cheaply constructed kilns has been under consideration and it is proposed to erect for experimental purposes one at least of a type similar to that recently perfected in Malaya.

13. It was noticed that increased attention was paid during the year by most growers to the care of their plantations. Due to their neglect for so many years it will take some time for the plantations to return to their former condition.

14. TABLE II shows the exports for the period 1932–1936.

15. CITRUS.—The Citrus industry received a slight set back as the result of low prices on the overseas' markets particularly the United Kingdom market which handles the bulk of our fruit. Prices in Canada remained fairly steady and good. The industry also suffered, though fortunately for a short time only, because of the shipment of fruit from the Republic of Honduras to Canada in the same bottom as fruit from this Colony. During the period that this took place Duncan grapefruit retunred an average loss of about 50 cents per case and Marsh grapefruit returned only a few cents profit per case.

16. Canned grapefruit proved a success and heavy shipments were made both to the United Kingdom and Canada. The British Honduras product has reached a high standard and is very uniform in quality. It is noteworthy that the canned grapefruit exhibited by the British Honduras Citrus Association at the 1936 Imperial Fruit Show was awarded 1st Prize.

17. Due to low prices received for the fresh fruit a larger proportion of grapefruit was canned and juiced than would have otherwise been the case.

18. The acreage under citrus has increased very little during the year. Planters generally are not anxious to increase their overhead charges but are inclined to mark time until their present young plantings come into bearing.

19. It is estimated that there are the following areas under citrus:

Stann Creek :—Grapefruit, 900 acres; Oranges, 82 acres; Miscellaneous 48 acres—Total 1,030 acres.

Corozal :—Grapefruit, 35 acres; Oranges (seedling) 70 acres—Total 105 acres.

Belize District :—Grapefruit, 50 acres; Oranges 10 acres.

There are of course considerably more trees than are indicated above. These figures concern only trees from which it would be possible to obtain fruit for export.

20. In view of the success obtained by the small trial shipments of Lemons from the Stann Creek Agricultural Station considerable demand for budded Lemon trees has been created. While the success so far obtained has been limited to Lemons shipped to Bermuda, the requirements of this market are sufficient to warrant the extension of the Lemon acreage.

21. Active interest in developing Citrus in the Corozal District continued during the year. The interested growers decided to form an association for the purpose of instituting central packing and marketing. It is hoped that before the 1937-38 crop comes in the association's packing shed will be ready. It is proposed to market all the fruit and to purchase all supplies through the existing Association (Stann Creek). This will obviate the creation of new brands and unnecessary competion as well as keep down overhead charges.

22. Parts of the Corozal District are very suitable for citrus culture and there appears no reason why citrus should not become of considerable economic importance in the district. The Department has laid down a small orchard of a large number of varieties of citrus fruits budded on a number of different stocks. Very interesting and valuable results are already becoming evident. A few notes on this work will be found included in the Corozal District Agricultural Officer's report (Section V. (B)).

23. TABLE III shows the exports of citrus fruits and products for the past four years.

24. RICE.—Since the revival of the rice growing industry in 1930 this year has been the worst from the point of view of quantity produced. Weather conditions are not entirely to be blamed. Again, and as pointed out in the Annual Report for 1935, the increasing activity in banana growing is one of the most influential factors in the lowering of production of rice. Reduced output was most noticeable in the Belize area. This, however, is not so much due to banana growing as to increased employment in mahogany and chicle works.

25. More hopeful signs were exhibited towards the end of the year in the Toledo District as shown by early interest being taken in seeking information about suitable rice lands for next season's crop. It appears that certain set-backs in the banana industry were the cause of this change of attitude.

26. Through the good offices of the Press a considerable impetus was given to the demand for local rice. Early in the season much adverse, though ill informed, criticism was levelled at the locally grown and milled product so much so that it was difficult to make sales of any appreciable quantity.

27. The introduction of a mechanical thresher also seems to have created a better feeling towards this crop. A small engine driven rice thresher of British manufacture was purchased for use in the Toledo Settlement area and did excellent work under most wet and trying conditions.

28. The following table indicates the production of padi by areas during the last four years based on purchases by the Rice Mills.

29. CASSAVA.—Efforts to encourage the growth of cassava on a bigger scale were made by officers of the Department in Stann Creek and members of the field staff of the Empire Starch Products Company. This Company, financed by Canadian capital and operated by Canadians, is erecting a modern cassava starch factory in the Stann Creek Valley as well as planting some hundreds of acres under cassava. Little response followed these efforts in spite of the good prices offered for roots. The bad influence of the banana growing fever is once more in evidence.

30. The establishment of a cassava starch factory can be looked upon as one of the best chances of developing a stable and payable industry that the Colony has ever had, but an industry which will not thrive without close and constant attention on the part of the producers of the raw material.

31. SUGAR CANE.—Interest in sugar cane cultivation is mainly centred round Corozal. The industry in the South is now of very little impotance but two or three small open pan factories still operate. The erection of the central factory near Corozal has given new life to cane planters in the area. It is interesting to see the almost complete change in cultivation methods that are gradually being adopted.

32. Until two years ago ploughing of cane fields was almost unheard of and after cultivation, except very superficially with a hoe, was not practised. Now ploughing and up-to-date cultivation of fields is becoming quite general. To assist in this the Department is arranging to carry out in the coming season ploughing and ridging on approximately 50 acres of growers' lands.

33. The demand for planting material of improved varieties has taxed the Department's resources to the full. Sufficient material was, however, available which enabled most cane growers to set out their own nurseries. The demand has been mostly for B.H.10 (12) and P.O.J. 2878.

34. It was not possible to make field surveys during the year. This work will be attempted in the near future.

35. CORN (MAIZE).—The crop suffered as the result of excessive rain. The total quantity produced, however, was possibly little less than in a normal year. Large shipments were made to the Board of Agriculture in Belize for processing and storage. On the whole the quality of the grain received was excellent although mixed in type and colour. Little corn was imported during the year and the stocks accumulated by the Board of Agriculture were soon disposed of.

36. PULSES.—Little interest appears to have been taken during the year in pulse crops. Quantities sufficient only for consumption on the plantation seems to have been the aim of most producers. The encouragement given to producers by offering a sure and paying market seems to have had little effect.

37. MISCELLANEOUS FOOD AND VEGETABLE CROPS.—A considerable improvement was noticed in the quantity and quality as well as variety of fresh vegetables offered for sale. Two planters grew small quantities of potatoes. Due to non-delivery of seed from Teneriffe no onions were grown this year. Greater production and consumption of root crops, such as yams and sweet potatoes was noticed. Planters are advised to grow more of these crops and to obtain planting material of superior varieties to those at present generally grown. Planting material in limited amounts for the present can be got from the Department.

38. MISCELLANEOUS MONEY CROPS.—Very little tobacco was produced during the year. Up to now only a very limited quantity of leaf suitable for local cigarette making has been produced and it is this type that is particularly wanted. It is felt that until the Department has been able to experiment further with this crop little will be gained from planting it. Further interest was taken in ginger cultivation but so far a product suitable for the overseas' market has not been successfully produced. The Department is keenly interested in this crop and is doing its best to perfect its production. More for experiment than for commercial production the Department distributed plants of the Tung Oil (*Aleurites montana*) to certain planters. This variety has proved to be suitable for Stann Creek conditions and a number of four year old trees are fruiting.

LIVESTOCK.

39. There is little change in the livestock industry. The bulk of the cattle raised are the property of a few, the small man as a rule not bothering with livestock. Increasing numbers of cattle were imported from the neighbouring Republic of Honduras during the year. The reason for this appears to be because the local cattle industry is unable to supply the local beef requirements. That this is so can hardly be credited when careful examination is made.

40. Fresh milk production is of very minor importance. An attempt to supply milk to Stann Creek was made during the year but railway freight rates killed it.

41. Pig raising continues to be an important industry amongst certain classes especially the Indians in the Toledo Indian Reserve. During the last seven months of the year no fewer than 1,169 hogs were shipped from the Reserve to the Belize market. Continued effort is being made by the Department to improve the quality of hog raised. Little interest was shown by pig breeders in the boars maintained by the Department for the servicing of sows.

42. The Department introduced a pure bred Berkshire boar and two sows from Canada during the latter part of the year.

43. Poultry raising is still very popular and during the year a number of importations of pure bred birds were made. More towns people are taking up poultry raising as a hobby. Eggs were fairly plentiful throughout the year but generally speaking their quality and size left much to be desired.

44. Goat raising is becoming more popular. The goat, if kept under proper control, is a most valuable animal to the small holder and planters are recommended to consider the keeping of a few goats on their farms particularly as a source of fresh milk.

PEST AND DISEASES.

45. CITRUS.—It is gratifying to report that no serious consequences have resulted from pests and diseases of this crop. Nevertheless, careful watch has been maintained and spraying with insecticides and fungicides has continued to receive the attention of the large growers.

46. BANANAS.—Panama diseases continues to be the major limiting factor in the development of this crop. This applies to all areas of the Colony excepting perhaps the Northern limestone portions. Here, however, it is shallowness of soil and tendency to too low a rainfall that act as limiting factors. Panama disease, if present at all, does not appear to develop in the northern limestone areas.

47. In the Punta Gorda district the incidence of the disease is increasing rapidly and during the year its increase was noticed particularly in the Toledo Settlement area. In spite of being warned about the serious consequences following upon infection of an area, and in spite of the Department's officers continual instruction in methods for preventing its spread, few planters appeared willing to follow the advice given. Because of the spread of Panama disease it is feared that this section of the country will not continue for long to be an important banana producer.

48. Added to Panama disease, which up to comparatively recently was considered to be the only serious disease, we now have what is known as "Sigatoka" Leaf Disease or Cercospora Leaf-Spot (*Cercospora musae* Zimm). Although a condition resembling "Sigatoka" was reported by the Agricultural Instructor, Toledo District, in January to be present in the Toledo Settlement it was not until November that the presence of this disease was definitely determined. The Agricultural Officer spent two weeks in November with the Tela Railroad Company (United Fruit Company) Research Department at La Lima, Republic of Honduras, studying the disease. As a result of this visit a special Leaflet describing the disease and suggesting methods of control was published in an attempt to help the planters to be able to identify the disease and prevent its rapid spread. Sporadic cases were recorded on all farms visited in December in the Toledo Settlement. Up until the end of the year it had caused no wholesale killing out of plants. Its spread has been extremely slow as compared with the rate it has spread in neighbouring countries.

49. GENERAL.—Leaf cutting ants, known as Wee-Wee ants (*Atta spp.*) continue to be most destructive. On certain crops and ornamentals the "Fire-ant" (*Solenopsis spp.*) causes considerable damage, as well as ruining seed beds by carrying away seed. The assistance given by the Department mentioned in last year's report has proved increasingly popular all over the Colony and a considerable quantity of CYMAG was sold at the reduced price. The Froghopper (*Tomaspis spp.*) was particularly evident on Rice and Sugar Cane in the Toledo district. Instruction in methods of control was freely given.

SPECIAL FEATURES.

50. The Board of Agriculture was reconstituted at the beginning of the year the Agricultural Officer becoming Chairman and certain new members appointed. The personnel of the Board was as follows :—

The Agricultural Officer	Chairman
H. Stansbury, Esquire	Vice-Chairman
R. H. Eyles, Esquire E. J. Hofius	
H. A. Gabb, Esquire (nominated by the British Honduras Agricultural Society)	
T. F. Bowman, Esquire.	

51. The Board became legally constituted late in the year as the result of the passing of Ordinance No. 14 of 1936.

52. The Board's main function is that of buying, processing and selling certain grain and pulse crops. The year under review proved to be a slack one for reasons already intimated in previous sections of this report. It is apparent that this buying scheme has more than justified itself although the Board is not yet paying its way. The scope of its activities are not yet fully appreciated by the distantly situated planters. Probably more propaganda amongst the outlying sections of the country is necessary. To assist planters it was arranged that the District Agricultural Officers in Stann Creek and Corozal should act as buying and selling agents for the Board in their districts. Belize and Punta Gorda are provided for already. Later it is hoped that El Cayo and Orange Walk will be given similar service.

53. CROWN LANDS.—As the result of the new regulations governing the disposal of Crown Lands reported in last year's Annual Report the number of applications received for purchase of land has increased very considerably. This does not mean, unfortunately, that any better method of husbandry will follow, but by restricting the amount of land any one individual may obtain it is hoped that gradually a more intensive system of cultivation will develop. The conditions of purchase call for development of a certain standard and amount. This necessarily involves inspection. It is questionable whether regular inspection by officers qualified to inspect and report is feasible. Therefore, the system may in the beginning prove unmanageable from this view point although there can be no question as to its ultimate beneficial effect on agriculture.

54. A matter requiring attention but with the present lack of staff impossible to accomplish is that of carefully surveying blocks of land thought suitable for agriculture before such blocks are opened for settlement. By doing this the departments concerned with land settlement, whether the settlement be organised or not, are better able to decide whether the land is suitable, and if so to keep track of how it is being taken up. Further, such a procedure would enable the Survey Department to carry out the detailed individual farm block surveys before occupation takes place. At present the majority of new grants have not been surveyed.

55. LAND SETTLEMENT.—Partly as the result of the report of the Land Settlement Committee—the appointment of which was noted in last year's Report—Government decided to start a Settlement for a maximum of 50 families in the Rockstone Pond area. The main features of the conditions of settlement are briefly as follows :—

(*a*) Each settler to receive about 15 acres of land.

(*b*) Land to be tax and rent free for the first three years.

(*c*) Land then may be purchased at the rate of $1.50 per acre payable in 10 equal semi-annual instalments or in one lump sum. Land at the end of the first three years to be subject to Land Tax.

(*d*) Each settler during the first 12 months will be eligible for three days work each week on some work of a public nature in the near vicinity e.g. road building. Payment at the rate of 75 cents per day will be given.

(*e*) Tools to the value of $6.00 and seed to the value of $5.00 will be advanced their cost being recovered by small weekly deductions from the wages received.

(*f*) The settlement is to be provided with a demonstration plot and a resident agricultural supervisor.

(*g*) The conditions obtaining for the development of Crown Grants will apply also to lands in the Settlement.

56. Applications were very slow in coming in and because of this and the early rains and certain delays of a technical nature it was decided to postpone the opening of the Settlement until February of 1937. It was decided, however, to continue accepting applications until the 31st December. A special committee to select settlers was appointed and consisted of the Agricultural Officer as Chairman, the Superintendent of Police, the Honourables H. L. Gabourel and L. P. Ayuso.

57. SCHOOL GARDENS.—The lack of agricultural education and the teaching of nature study in the schools is a serious drawback to the development of agriculture in the Colony. It is in the schools that occur the best opportunities for inculcating an agricultural sense into the people. The coming generation is the one to help. With this in view the Department cooperated whole-heartedly with the Education Department in starting three school gardens in Corozal town. As there are no school teachers in the Colony sufficiently qualified to undertake the instruction of children in gardening and nature study the District Agricultural Officer has been made responsible for this side of the work as well as the practical side of gardening. Every endeavour will be made to encourage this work in the other districts.

SECTION II.

DEPARTMENT OF AGRICULTURE.

58. GENERAL. The staff of the Department was reduced during the latter half of the year by the absence on oversea's leave of Mr. R. A. Kitching. The Agricultural Officer in addtion to his ordinary duties acted as District Officer for Stann Creek.

59. Mr. E. W. Francis, Foreman of the Stann Creek Agricultural Station, was transferred at his own request to the Survey Department as Inspector of Crown Lands. With the agricultural experience he gained while in the Department he will no doubt be of great value to his new department. Mr. A. E. Wyatt, who was for a short time a student at the Imperial College of Tropical Agriculture, Trinidad, was selected for the post of Foreman. C. D. W. Atkins, who for some years had been employed as a Rice Mill hand, was appointed on probation to the post of Temporary Local Assistant, Rice Experiment Station. It has been singularly difficult to find a suitable man to fill this post.

60. The District Agricultural Officers have continued to carry out their normal duties which include district extension work, management of their district agricultural station, and export fruit inspection in the case of Stann Creek, Corozal and Belize. In the case of Punta Gorda, Mr. Haynes has been further occupied with banana leaf disease control and management of the Punta Gorda Rice Mill and produce buying depot.

61. Mr. Manning, District Agricultural Officer for Corozal, was seconded, part time, for work on a new sugar cane estate to advise on and supervie the establishment of cane fields. Although this is part of the normal duties of a menber of the Department of Agriculture because of the small membership of the Department such outside work tells greatly on the routine work of the officer concerned. In this particular case it happened at a time when the officer was particularly busy with the work of establishing the new Agricultural Station.

62. The opening of the new Agricultural Station at Corozal and the appointment of an Agricultural Officer for the district coincided with the reawakening of interest in sugar cane production and the erection of the Corozal Sugar Factory. A more fitting time could not have been chosen for the appointment and establishment of the Station. Having had considerable field knowledge of sugar cane the Agricultural Officer was able to introduce new and better ideas into cane farming in the district and by demonstration on the farm convince farmers of the benefits to be gained. The supply of planting material of a number of varieties of cane, from both the Stann Creek and Corozal Stations, proved of great help. Unfortunately, due to difficulties of packing cheaply and the extremely careless handling of freight large qauntities of cane cuttings arrived at their destination useless for planting. As a result it has been decided to transfer the production of cane planting material to Corozal. A manurial trial with sugar cane was laid down and a number of new varieties were introduced from the Trinidad Plant Quarantine Station.

63. Further work in Corozal dealt with tobacco experiments, potato growing trials, Sea Island and Marie Galante cottons, vegetable growing, Citrus, Tung Oil, Advocados, peanuts, and various pulses and grains. A feature, and one that proved of considerable interest, was the "Peasant Holders' Plot" consisting of a small area systematically planted under essential food crops and money crops and suitably cultivated. Vegetable growing proved a great success. It is to be hoped that small holders in the vicinity will derive encouragement from these successful trials and take up market gardening. It can now safely be said that most of the so called temperate vegetables regularly imported are possible of local production especially in the Corozal area. Strong efforts are to be made to encourage this line of farming.

64. The Agricultural Officer, Corozal, spent much time and energy on the matter of organising the Northern Citrus Industry. As the result of his efforts it has been decided by the Growers to form an Association to work in close relationship with the British Honduras Citrus Association. The objects of the northern association are to operate a central packing shed and generally to organise the industry in Corozal.

65. Although in connection with Tobacco culture weather conditions greatly hampered experimental work information that will be of value was collected. A small flue curing barn was erected on the Station.

66. Potato trials were hampered by short shipment of seed. Only one variety, viz. Epicure, was planted giving most discouraging results.

67. The small experimental Citrus Orchard made very satisfactory growth and valuable information on root-stocks was obtained. Citrus nurseries have been started for the supply of trees to the Northern Districts.

68. Avocado trees growing in the District were examined with the object of selecting suitable parent trees for the supply of propagating material.

69. In Stann Creek much of the time of the District Officer was taken up with land inspection for Land Tax purposes. Due to the differential land tax obtaining in the Stann Creek Valley frequent inspections are necessary. It is questionable whether this type of tax has improved the standard of agriculture in the district. His duties as Fruit Inspector required a considerable amount of his time. As the result of the advent of the Cassava Starch Products

Company new cassava nurseries were laid down. A shipment of Cassava Starch prepared in the Department's experimental starch factory was made to Canada and was reported on very favourably.

70. New citrus orchards were planted at the Industrial School under the supervision of the station staff. As the demand for Citrus plants was not so great as usual and due to a large accumulated stock the propagation of plants was curtailed.

71. Unsuccessful attempts were made to propagate the Queensland Nut (*Macadamia ternifolia*). A small number of Tonca Beans (*Dipteryx ordorata*) imported from Trinidad germinated. In an attempt to find permanent tree crops suitable for the small holder the Department is introducing such crops for trial. Criollo Cacao, found growing wild in certain sections of the Colony, is being tried out in Stann Creek. Samples of pods and bud-wood of this cacao were sent to the Cacao Research Department of the Imperial College of Tropical Agriculture, Trinidad. Coffee is receiving attention. Liberian coffee is doing well at the Stann Creek Agricultural Station and there is a big demand for seedlings.

72. As it has not been possible to train local men sufficiently in the care and management of rice experiments the Rice Officer was again forced to curtail his extension work more than is desirable. He was, however, able to cover his district more than in previous years. Good progress was made in the variety trials and other investigational work being carried out on the Rice Station. The stage has now been reached when seed of introduced varieties of rice can be issued with confidence. A small amount of seed of No. 79 (a variety introduced some years ago from British Guiana) was issued to selected farmers.

73. During the year samples of the following products were sent to the Imperial Institute for examination and report. Sesamum seed ("Wanglar"), Coriander seed, Annatto seed and further samples of ginger.

74. Inspection of importations of plant material and certain plant material for export was carried out rigidly during the year.

75. The Agricultural Officer visited the United Fruit Company banana farms at and near La Lima, Republic of Honduras, in November, for the purpose of familiarising himself with the Cercospora Leaf-spot disease of bananas. He spent a fortnight with the Company's Research Department from the officers of which he gained much valuable information.

76. The Agricultural Officer was called upon by the Police to examine a number of samples of material suspected of containing Ganja (Cannabis sativa), and appeared in the Police court on two occasions to give expert evidence.

77. The following articles and publications were written and prepared by members of the Department in addition to routine reports:

"Sigatoka Leaf Disease of Bananas (Cercospora Leafspot). Leaflet No. 3, Department of Agriculture, by H. P. Smart.

"Agriculture in British Honduras, 1928–1936", by H. P. Smart.
Journal of the British Honduras Agricultural Society, Vol. II, No. 3, July to September, 1936.

"Growing Rice for Profit" by D. D. Haynes, Journal of the British Honduras Agricultural Society, Vol. III, No. 1, January to March, 1937.

A Note on the Sugar Cane Bug or Froghopper", by D. D. Haynes, Journal of the British Honduras Agricultural Society, Vol. III, No. 1, January to March, 1937.

78. The Agricultural Officer gave a talk on School Gardens to the Teachers' Vacation Course in Belize in December.

79. The following Boards and Committees were served on by members of the Department.

The Agricultural Officer

(*a*) Board of Agriculture–Chairman.

(*b*) Settlers' Selection Committee–Chairman.

(*c*) Banana Industry Committee–Chairman.

(*d*) Coconut Products Factory Committee to consider and report on certain proposals submitted to Government–Chairman.

(*e*) Select Committee to investigate and advise on matters dealing with Immigration Laws–Member.

(*f*) Select Committee to investigate and report on the apparent shortage of cattle–Member.

Assistant Agricultural Officer, Stann Creek—

(*a*) Stann Creek District Board–Member.

80. Mr. R. A. Kitching, Assistant Agricultural Officer, Stann Creek, was appointed a Justice of the Peace, and Mr. H. P. Smart, Agricultural Officer, was appointed provisionally an Official Member of the Legislative Council.

81. PINE RIDGE RICE PLOT.—In last year's Annual Report mention was made of the inauguration of an experiment to investigate the possibilities of growing rice in the rush ponds that occur scattered all over the Pine Ridges to the West of Belize. The experiment was continued during the year under review with most disappointing results. In spite of the fact that the land had been thoroughly tilled, aerated and drained for over a year the results of the summer sown crop were even inferior to those of the previous year. The crop sown in the Autumn of 1935 also proved an utter failure. Improved drainage was provided so as to prevent excessive water-logging during rainy weather. As a result of the year's trial it was decided to abandon the experiment.

82. REPORTS OF THE DISTRICT AGRICULTURAL OFFICERS. The reports submitted by the District Officers on their district work and that of the Agricultural Stations are included in full under Section V of this Report.

SECTION III.

EXPENDITURE AND REVENUE.

Expenditure.

1.	Personal Emoluments	$11,505.09	$11,505.09
	Other Charges.		
11.	Transport and Travelling	$1,470.65	
12.	Books and Periodicals	50.67	
13.	Herbarium and Museum	13.40	
14.	Laboratory Equipment	25.47	
15.	Samples and Exhibits	13.86	
16.	Rental of Office	300.00	
17.	Incidentals and Freight	259.36	
18.	Investigations and Trial Shipments ..	1,426.21	
20.	Meteorological Instruments upkeep ..	24.80	
21.	Bicycle Allowance to Messenger	18.00	
22.	Inspection of Export Fruit	22.53	
23.	Maintenance of working Livestock ..	1,169.64	
24.	Stock Breeding Experiments	320.24	
25.	Fertilizers and Insecticides	911.12	
26.	Plants Nurseries, Seeds and Plants ..	814.57	
27.	Trackage and Upkeep for Rail Motor Car	167.34	

28.	Implements, Upkeep and Repairs	306.03	
29.	Tools and Equipment Purchase of	503.17	
30.	Telephone Service	—	
31.	Training of Pupils	70.13	
32.	Agricultural Station, Stann Creek	2,705.73	
33.	Agricultural Station, Corozal	2,020.67	
34.	Rice Station, Punta Gorda	1,636.94	
36.	Citrus Nurseries and Plant Introduction ..	2,072.06	
38.	Corozal Agricultural Station, C.D.F. ..	683.99	
39.	Purchase of Motor Lorry	710.00	
40.	Meteorological Instruments	98.75	
41.	Reservoir and Pumping Plant	849.52	
42.	Engine Cassava Starch	300.00	
			18,964.85

PEST CONTROL.

Purchase of Insecticides	169.30

BOARD OF AGRICULTURE.

Purchase of Produce, Wages, etc.	9,915.89
Grand Total Expenditure	$40,555.13

REVENUE.

1.	Sale of Produce, Agricultural Stations ..	$619.69
2.	Sale of Insecticides	116.87
3.	Sale of Citrus Plants	1,527.18
4.	Sale of Produce, Board of Agriculture ..	5,055.45
		$7,319.19

SECTION IV.

LEGISLATION.

83. The following Legislation was enacted during the year: S. R. & O. No. 15 of 1936. Prohibiting the importation of Grapefruit and Orange plants except under certain conditions.

Ordinance No. 14 of 1936. An Ordinance relating to the Board of Agriculture.

84. In conclusion I wish to express my appreciation of the loyal services rendered by all members of the Department during the year.

H. P. SMART,
Agricultural Officer.

26.4.37.

SECTION V. (A).

REPORT ON THE AGRICULTURAL STATION AND DISTRICT STANN CREEK, FOR THE YEAR 1936.

I.

THE DISTRICT.

1. During the past year the output of bananas has gone up but that of citrus gone down and the advance noted last year in the number of crops being tried out has not continued.

2. Very wet weather, especially from July until December, was the chief cause of failure amongst various crops in the District.

BANANAS.

3. The area under bananas has remained about the same, some new land going under cultivation and a lot going out of cultivation on account of Panama Disease, a limited area being replanted with other crops, citrus particularly.

4. There was an improvement in the percentage of shippable bunches of fruit got from the plantations.

5. The following are the shipments for the past four years :—

Months	STEMS			
	1933	1934	1935	1936
January	—	6,593	11,121	14,336
February	—	7,370	11,598	10,324
March	—	4,667	8,800	7,895
April	—	7,090	9,845	11,480
May	—	9,659	13,273	15,076
June	—	12,870	11,825	21,634
July	—	13,160	12,784	24,336
August	—	14,028	12,186	22,545
September	—	12,567	10,845	24,274
October	—	13,373	12,581	18,501
November	—	13,699	8,037	16,501
December	—	10,676	9,119	15,476
Total, the Valley	—		132,014	202,378
Other parts, District (apx.)			12,000	36,000
Totals	57,374	125,752	144,014	238,378

6. There are a large number of Lacatan and Canary Bananas in the district which the planters are now unable to dispose of as the locally registered small craft, the owners of which used to buy these fruit for shipment to the Southern United States of America have now ceased operations. Investigations are now being made to try and find some other way of disposing of these fruit.

CITRUS.

7. The area under Citrus has not extended as much as last year, most of the planters marking time until their present plantations come into remunerative bearing ; but there has been come increase, particularly with Lemons, Oranges and Mandarins.

8. The acreage under citrus in the District now is :—

	Bearing	Non-bearing	Total
Grapefruit	400	500	900
Oranges	12	70	82
Miscellaneous Citrus	8	40	48
Totals	420	610	1,030

9. The season 1935–36 eventually reached a total of 33,094 cases of Citrus fruit, being made up as follows :—

Fresh Fruit.		
Grapefruit	24,833 cases	
Oranges	831 ,,	
Mandarins & Tangerines	219 ,,	
Limes and Lemons	49 ,,	
Canned Fruit	4,208 ,,	
Juice	2,954 ,,	
		33,094

10. The 1936–37 crop has not come up to expectations, principally on account of the wet weather experienced during the flowering season.

It will probably be under 20,000 cases, 17,937 cases having been reaped from July to December, 1936, made up as follows :—

Fresh Fruit.		
Grapefruit	13,918 cases	
Oranges	248 ,,	
Tangerines & Mandarins	0 ,,	
Lemons & Limes	9 ,,	
Canned & Juiced Grapefruit	3,762 ,,	
Total		17,937 cases

11. So far this year the flowering has been very poor, the weather still being very wet and the prospects of a good crop for the 1937–38 Season seem remote. It is expected however, that with the help of the new areas that are coming into bearing there will be a definite increase, but the majority of the fruit will probably not be ready for reaping until 1938.

Estimate for 1937–38 Season crop	40,000 cases
Estimate for the year 1937	15,000 cases.

12. The British Honduras Citrus Association got the Gold Medal at the Imperial Fruit Show for 'Canned Grapefruit'.

13. The prices obtained during the past year were lower than last year's average.

14. The general look of the Citrus orchards is very good, most of the trees having put on a lot of new growth. Spraying for scale has been carried out to a limited extent and dusting for Rust Mite on most of the bearing groves.

15. Fertilizing has gone on pretty much the same lines as last year, some of the planters preferring Enpekay to Nicifos II.

CASSAVA.

16. The long hoped for Cassava Products Factory is now in process of erection. A Canadian firm, The Empire Starch Products Company, have bought land in the Valley on which they have started to plant out with cassava. Houses are being built and the factory site prepared.

17. It will be some two years before manufacturing operations can start and it is hoped that with the example given by the Company that the majority of the planters in the valley will start and plant cassava on a scale that will make the success of this industry assured. So far, the response has been very slow but there are signs that some of them are prepared to give cassava growing a trial and once they start it is felt sure that they will carry on.

COCONUTS.

18. There has been increased interest in this crop and there has been a limited amount of new planting. Large areas however, of the old coconuts have been neglected for years and look like being altogether abandoned; in some instances the bush has been allowed to grow as tall as the trees. There has been some effort to bring some of these plantations back into cultivation but so far the work has proceeded very slowly.

MINOR CROPS.

19. Very little was done in the way of growing corn and pulses, wet weather ruining the corn crop and retarding the sowing of beans. The Board of Agriculture is still buying these products through the Agricultural Station but got very little to handle this year.

STOCK.

20. There has been a slight increase in the number of stock kept in the District and the local demand for pork and mutton is being met. There was for a short while a shortage of beef animals, which resulted in a number of young heifers being butchered when it would have been better for the district if they had been kept for breeding. It looks as if the supply in future should be ample. It is hoped that if the Cassava Industry is a success and expands that there will be a demand for draught animals for work in the cassava fields and haulage and eventually for manure manufacture.

21. The use of fresh milk was increasing but received a set back when the freight on milk on the Railway was raised.

II.

THE AGRICULTURAL SETTLEMENT, 19 AND 20 MILES, STANN CREEK RAILWAY.

22. Thirty-one of the original 62 plots are still occupied, the majority of these settlers working for other planters in the Valley and growing bananas on the Royalty basis on other lands. The bananas on the Settlement Plots have practically all succumbed to Panana Disease and the other crops like coffee, citrus, cacao and coconuts etc. have not come into bearing yet. Most of them have sufficient ground provisions and food crops, but very little in the way of money crops bearing on their plots at present. Most of them depended entirely on bananas as a money crop and now have to get outside employment to keep them going until their other crops come into bearing.

23. Now that there is going to be a definite market for Cassava it is hoped that they will take advantage of it and that cassava will take the place of bananas.

THE 23 MILES SETTLEMENT.

24. Here the outlook is brighter, most of the settlers still getting a fair number of bananas to ship and getting employment on the neighbouring grapefruit estates. The planting of crops like citrus, coffee and cacao has gone ahead on most of the plots and a few of them had satisfactory crops of tobacco, Red Kidney beans and corn. A few of the plots went down rapidly with Panama Disease before a crop could be got off them. These plots are in a very unsatisfactory condition, the owners not having had the necessary time and money to plant other crops and look after them. Some of these men have abandoned their land and others with the help of employment from other planters and grants of new land suitable for banana growing are trying to establish other crops on the land.

25. It would be a good plan for the Board of Agriculture to offer to purchase all cacao, coffee and ginger produced in the Colony and so establish a definite market for these products. At present these crops are being planted and the planters are beginning to wonder how they are going to dispose of them when they come into bearing. If there was a known market for these products larger areas would be put under them each year.

III.

THE AGRICULTURAL STATION, STANN CREEK.

26. The general work at the Station has been the same as in past years.

27. The area now under cultivation is 120 acres, made up as follows:

Pasture	12 acres
Citrus Groves	25 ,,
Bananas	4 ,,
Cane	1 ,,
Cassava	4 ,,
Cacao	2 ,,
Tung Oil	3 ,,
Coffee	4 ,,
Mangoes	1 ,,
Citrus Nurseries	4 ,,
General Nurseries	1 ,,
Cassava Nurseries	4
Corn, Beans etc	1 ,,
Miscellaneous Economic Fruit Trees	4 ,,
Fodder and Mulch Grasses	3 ,,
Roads and Drains	10 ,,
House Plots and Gardens	5 ,,
Under fallow	32 ,,

METEOROLOGY (1936).

MONTH	Relative Humidity			Rainfall (Inches)	Shade Temperatures	
	Average Monthly	Highest	Lowest		Mean Daily OF	Mean OF
January	81	99	58	4.07	84	67
February	79	99	48	3.72	84	68
March	87	99	61	1.66	84	67
April	94	99	72	6.40	86	71
May	88	100	63	19.42	86	71
June	82	100	66	10.65	86	72
July	83	99	72	27.48	86	74
August	77	95	65	6.29	89	74
September	80	99	69	10.24	87	74
October	79	100	62	11.14	83	72
November	82	99	59	23.19	81	70
December	78	95	53	3.74	81	66
Totals	—	—	—	128.00	—	—
Average	82	99	62	—	85	70

28. The following plants and seeds have been introduced and planted at the Station during the year :—

(1) From Jamaica—Buds of Davis Seedless Grapefruit.

(2) From Florida, U.S.A.—Buds of Persian Lime.

(3) From British Guiana—White Hairi (Lonchocarpus nicou).

(4) From Calcutta, India—Vegetable seeds.

(5) From Trinidad—Tonca Bean.

(6) From Tela, Spanish Honduras—Synsepalum dulcificum, Chalcas paniculatis, Atdisia crenulata, Tectona grandis, Jatropha podagrica, Spathodea campanulata, African Oil Palm Puilelmia utilis, Alberia gardneri (Ceylon Gooseberry), Duranta plueniera (Golden Dew Drop) Cananga odorata, Annona sp. Combretum F.P.I. 73930, Holmskioldia sangiunea, Pogonopus speciosus, Cinnamon root cuttings, Ficus maringiana, Honckenya Fulcidolia, Acalypha hispida, Chinese Dwarf Lemon, Limekuat, Kusai Lime.

PLANT MATERIAL AND SEEDS DISTRIBUTED.

29. The following plants and seeds have been distributed during the year :—

NAME	Previous	1936	Total
Avocado, trees, No.	3	—	3
Badu, suckers No.	200	—	200
Banana, suckers No.	2,728	325	3,053
Beans, seed lbs.			
Red Kidney	—	15	15
Horse	10	—	10
Breadfruit trees, No.	17	31	48
Cacao, seedlings, No.	—	6	6
Cassava, cuttings No.	5,250	8,600	13,850
Corn, seed, quarts	125	—	125
Corn, seed, lbs.	83	135	218
Coconut, seedlings No.	—	383	383
Citrus, budded plants, No.—			
Grapefruit	7,280	4,782	12,062
Oranges	2,351	1,913	4,264
Tangerines	72	13	85
Limes	100	28	128
Lemons	272	230	502
Sour Orange Stocks	350	—	350
Sour Oranges Seedlings	815	—	815
Other Citrus	855	1,581	2,436
Coco, tubers. No.	424	—	424
Coffee, seedlings. No.	3,758	800	4,558
Cowpeas, seeds. lbs.	8	—	8
Cover & Green Manure Crops, seeds lbs.	147¾	64½	212¼
Dasheen, tubers. No.	150	—	150
Grasses, cuttings	5,200	750	5,950
Mango, trees No.	38	27	65
Nutmeg, seedlings. No.	6	—	6
Ornament Plants & Shade Trees, cuttings	1,131	410	1,541
Guango, trees, No.	46	—	4
Erythrinas, No.	250	—	250
Erythrinas, seeds, lbs.	1	2	3
Papaw, seeds, ozs.	2	—	2
Pigeon Peas, seeds, lbs.	14¾	—	14¾
Pineapple, slips, No.	443	350	793
Rice, seed, lbs. Br. Guiana	722	—	722
Rice, seed lbs. Br. Honduras	640	—	640
Sugar Cane, cuttings, No.	32,833	7,339	40,172
Sweet Potato, cuttings No.—			
Trinidad variety	5,633	—	5,633
Towel Hill variety	3,432	—	3,432
Local variety	155	—	155
Tobacco, seed, ozs.	½	—	½
Tobacco, seedlings, No.	1,550	—	1,550
Yam, tubers, No.	979	250	1,029
Economic Trees, No.	440	68	508
Economic Trees, seed, lbs.	¼	—	¼

CROPS UNDER TRIAL.

30. BANANA.—The trial with Gros Michel started in 1933 has now completely succumbed to Panama Disease. The following are the final costs and results obtained from the trial:—

Costs at end of 1935	$256.91	
Revenue	157.11	
Difference	99.80	99.80
Costs during 1936:		
Cleaning and weeding	11.18	
Cleaning drains	2.49	
Pruning	7.35	
Panama Disease Control	19.20	
Reaping	6.41	46.63
		146.43
Revenue		144.29
Loss on trial		$2.14

31. It should be pointed out that one of the heaviest charges against this plot was 'Panama Disease Control' which proved to be useless under the conditions prevailing in the Valley. The cost of this operation was, over three years, $55.05.

32. The other varieties of Bananas planted at the Station have done very well, but the locally registered small craft which for a time were buying these bananas and taking them to the U.S.A. have now stopped operations, so these bananas are now being used locally and for feeding pigs, etc.

33. The Canary Bananas and Manilla Hemp received from Kew in 1934 and the Giant Governor Banana received from Trinidad last year grew well and have been replanted.

34. CITRUS.—The Varietal and Stock Trials are doing satisfactorily. The crop during the past year was much less than for the previous year, the wet weather experienced having caused the trees to flower very sparsely.

35. The Citrus Manurial and Cultural Trial plots are growing slower than was expected. This is probably accounted for by their being planted on unburnt land, also the establishment of cover crops has been very difficult, none of the types tried having proved satisfactory.

36. Further plantings of the following have been made: Temple Oranges Davis Seedless Grapefruit, Thomson Grapefruit, Genoa and Meyer Lemons and Tahiti Limes.

37. TUNG OIL.—The plot of Aleurites Montana planted in December, 1932, fruited again and a sample of the nuts were sent to the Imperial Institute for their examination and report.

38. A further 3 acres have been planted out, half with A Montana and half with A. Trisperma grown from seed obtained from Spanish Honduras.

39. Some budding of A. Fordii on to A. Montana has been done successfully. These young trees will be planted out during 1937.

40. CACAO.—(Criollo)—These are starting to grow at last. They were hampered for a long time through having insufficient shade. This has now been rectified and the young trees are responding to treatment. Quite a lot of supplying had to be done.

41. The seed from which these trees were grown were obtained from cacao trees growing wild in the Silk Grass Forest Reserve, Stann Creek District.

42. CASSAVA.—The varietal trials were continued, the roots reaped being made into starch by the small mill erected at the Agricultural Station. A large number of the plots were not completely reaped as it was not possible for the mill and the labour available at the station to handle the whole of the crop. Now that a Cassava Factory is being erected in the Valley, this difficulty will be got over and it should be possible to reap the plots more regularly.

43. A separate report has been written about this crop. The average yields per acre for the best varieties tried were :—Blue Beef 11½ tons ; New Green 16 tons (one year exceptional yield of 30 tons per acre) ; French No. 3, 12 % tons (one year exceptional yield of 27 tons per acre) ; White Stick (bitter) 11tons per acre ; Bobby Hanson 12 tons per acre.

44. The average tonnage per acre for all the varieties tried was 9½ tons and the average cost per acre was $33.30.

45. COFFEE.—The Liberian Coffee plot received a severe set back during the excessive wet weather through water logging as part of the land is very low lying and difficult to drain. Most of the trees however, gave a good crop.

46. The Arabian Coffee under natural shade is coming along well and has started to flower.

47. CORN.—The 'Ear to Row Selection' Trials were a complete failure this year, the whole getting washed out.

48. GROUND NUTS.—Three small plots of Ground Nuts were planted in July, August and September. the land being harrowed and made into drills, the drills being 2½ feet apart . Some of the seed was shelled before planting and some left unshelled.

49. The results on the whole were unsatisfactory, probably on account of the heavy rains experienced most of the time the crop was in the ground. Further trials are to be made.

50. GINGER.—Some trial plots of ginger were reaped and a sample sent to the Imperial Institute for their report and analyses, which was satisfactory. Further plantings have been made on a slightly larger scale.

51. CAULIFLOWERS.—Some trials were carried out, using seed obtained from Suttons, some being of Indian origin.

52. Sutton's Early Market has been found to give good results when sown during the months of August, September, October, November and December and Early Patna when sown during April, May and June.

53. The heads on the whole were on the small side, the best results being obtained from those plants reaped in December and January. There is a good demand for them locally and it is hoped that some of the local planters will take up the cultivation of this vegetable.

54. Other vegetables tried with success are :—

Tomatoes (Henderson's Master Marglobe), Cucumber (Henderson's Chinese), String Beans (Kentucky Wonder and Bountiful), Lettuce (Mignonette), Carrots (Chantenay), Turnips (Early White Milan) and Parsley (Henderso 's Extra Double Curled).

55. LIVESTOCK.—Two more young steers were purchased during the year, bringing the total to six. A further eight are being broken in for local planters, who are now realising their usefulness as draught animals.

56. The old steers have continued to give satisfactory service, doing all of the ploughing and cultivating and most of the carting.

57. The mule and horse continue to give no trouble, doing all that has been required of them.

58. The rearing of pigs was again undertaken, a start being made with three local sows and a pure bred Duroc-Jersey Boar. This boar for a long time failed to thrive and was the source of much worry. Lately there has been an improvement and he looks like developing into a good animal.

59. Later in the year a Canadian Berkshire boar and two sows were obtained. These are doing well and it is expected that their progeny will be of particular benefit to the District.

60. So far very little use has been made of the boars by the local planters, none having taken advantage of the opportunity offered to get their sows served. From what I can hear however, this fault will be remedied during the coming year.

EXTENSION WORK.

61. Various Estates and plantations in the District were visited, trips being made to Mullins River, Sittee River, Blair Atholl, Commerce Bight, Seine Bight and Placencia. Visits were also made to plantations in the Belize District and the Agricultural Station and plantations in the Corozal and Orange Walk Districts.

BUILDINGS.

62. A new house was built for the Captain. This is the start of a scheme to have better housing accommodation for the labourers employed at the Agricultural Station. Up to now thatched huts with wooden floors and wild cane sides have been used. It is thought that improved housing conditions will make far more contented and healthier labourers.

63. A new Storeroom is needed for storing fertilizers, insecticides etc. which at present are not stored under the best conditions.

(Sgd.) R. A. KITCHING,
Assistant Agricultural Officer,
Stann Creek District.

15th March, 1937.

SECTION V. (B).

REPORT ON THE AGRICULTURAL STATION AND DISTRICT COROZAL, FOR THE YEAR 1936.

I.

THE DISTRICT.

During the past Agriculture in this area of the colony has been confined mainly to the production of Maize for local consumption. As a money crop the Sugar cane industry with its main by-product Rum manufacture, was the sole attempt at organized agriculture. Latterly this industry has received a new impetus in the formation of the Corozal Sugar Factory Co. Ltd., a central factory situated at Pembroke Hall. Within a short time it is expected that the demands of this concern will create a better system of cultivation of the sugar cane.

2. During recent years Citrus growing for export has been taken up by two growers. With the initial establishment of the Agricultural Station there has been little time available for the dissemination of information on this and other likely crops for the area. At the same time planters have been encouraged to increase their areas under citrus, mainly Marsh Grapefruit.

3. This has been a year of most unusual weather. The average annual rainfall for this area is not in excess of 60 inches per annum, and with a total of 94.23 inches it can be seen that the planting of certain crops became rather hazardous. January with mild rains, coupled with relatively low soil temperatures, was most suitable for the planting of short crop annuals. Later in the year however, with infrequent but heavy rains and high soil temperatures, the plantings were in many instances attended with material losses. All transplantings during June, July and early August were heavily supplied.

The main crops of the district can be noted as follows :—

CITRUS.

4. At the present time the area under citrus is now :—

	Bearing	Non-Bearing	Total
Grapefruit	30 acres	5 acres	35 acres
Oranges	50 acres	20 acres	70 acres

5. About 30 acres of the bearing Grapefruit are of the Marsh seedless type. All of the bearing oranges are of the native seedling type.

6. An attempt at organised production and export is being made in the formation of a subsidiary association of the British Honduras Citrus Association.

BANANAS.

7. Further plantings of this crop have been carried out by many small holders, since the apparent demand for fruit at the beginning of the year. With the abnormally high rainfall, for this area, the vegetative growth has been good but it was noticed that the bearing capacity of the trees as a whole was comparatively poor. It is understood also that the "carrying" quality of the fruit from this area is of a very low order, It is known that the soil, although ideal for such crops as sugar cane and citrus, is not entirely suitable for the efficient production of bananas on an economic scale.

8. Irregular shipments by casual boats were sent from the district with the result that the exact amount shipped is rather uncertain.

SUGAR CANE.

9. With the renewed interest in the crop, due to the erection of the central sugar factory, further plantings of sugar cane have been undertaken by most of the larger estates. Certain new areas have also been opened with plantings on a large scale. As only a small amount of plants of imported varieties were available, these plantings were, of necessity, very small. It is hoped however that the areas will gradually be extended so that many of the existent types which have outlived their usefulness will be discarded.

10. Existing methods of manufacture cause the production figures to be largely approximated. No yields of sugar cane per acre are available as no weighings are undertaken.

11. Rough surveys of the sugar cane areas show that among the varieties planted are Crystalina, Purple Bamboo, Striped Bamboo and D. 625. All plantings are very mixed with the result that even approximate areas of each variety cannot be given.

MINOR CROPS.

12. The revival of trade in the area has had the beneficial effect of creating an increased demand for certain of the local food crops. The increase for the most part was noticeable in the extension, over the previous year, of the area under Maize. The heavy rains experienced during the period of maturity have however had a depressing effect on the yields. It is doubtful therefore whether the available corn produced is in excess of the previous year's total

Little interest has been shown in the growing of ground provision crops though it is hoped to be able to interest growers during the next year.

II.

AGRICULTURAL EDUCATION.

13. It is probable that, from an educational point of view, the commencement of the school gardens for the district would give ultimate benefit to the district. Because of the relative inefficiency of the agricultural labourer, taken as a group, it was thought that early lessons in elementary agriculture would provide the only method by which in the course of time an efficient labourer could be evolved.

14. Towards the end of the year preliminary ploughing of the lands of the three schools in Corozal town was carried out and the laying of plots commenced.

15. For the present it has been decided to concentrate mainly on the local food and money crops. Preliminary instruction in the elementary principles of agriculture is also to be given to the pupils at an early date.

III.

THE AGRICULTURAL STATION, COROZAL.

16. The creation of this station has, it is hoped, paved the way to a new area of agricultural prosperity for this area. During its initial establishment period from February, 1935, to the present date, the work has been directed mainly to the production of crops new to this area, so that at the present time, with but few exceptions, no definite experiments have been laid down. It is hoped during the next year to reduce the number of crops in the experimental stage so that a fixed programme of work can be followed. Although situated one mile from the town of Corozal considerable interest has been shown by the potential and actual agriculturists. Periodical visits are made to see the progress of the station and the new crops. Of necessity the routine work of cultivation and planting is in itself educational to the people as common agricultural implements such as forks, hoes, etc. are comparatively unknown to the natives.

17. Scarcity of labourers at the commencement of the mahogany logging season resulted in a demand for increased wages. At the same time a regular demand for labour was created by the new road work in the district. Certain very necessary field operations at this time were therefore more expensive that would otherwise have been the case under normal labour conditions.

18. It must be appreciated that if agriculture is to prove economic under the conditions existent in this area of the colony wages must remain at a more economic level. While the work at the station is being directed so as to encourage the consumption of local produce to reduce living costs, the labourer must also realise that greater purchasing power from his money can be derived from this reduction in living costs and not only by increased wages.

19. It is not the desire of this station to underpay labourers but to make agriculture, now almost in its infancy, economic as compared with competitive foreign producers. This can only be carried out by lowering production costs and increasing the production per unit area.

20. Since the original clearing work of the station was commenced during March 1935 the following areas have been placed under cultivation:—

1.	Citrus	6 acres
2.	Sugar Cane	3½ acres
3.	Bananas	6 acres
4.	Tung Oil, Avocado, Mango	3¼ acres
5.	Corn (Since created a pasture)	17 acres
6.	Tobacco	1 acre
7.	Irish Potatoes	¼ acre
8.	Nursery	4 acres
9.	Buildings, Houses etc.	3 acres

METEOROLOGY.

MONTH	Relative Humidity			Rainfall		Air Temperatures Shade		Soil Temperature 1 Foot	
	Mean	Highest	Lowest	Inches	Rain Days	Mean Daily Maxm.	Mean Daily Minm.	Mean At 9:00 a.m.	Mean At 3:00 p.m.
JANUARY	89	100	64	6.27	18	83	67	77.5	78.0
FEBRUARY	82	100	55	1.15	14	86	66	80.6	81.0
MARCH	86	97	69	0.14	2	87	64	81.6	82.2
APRIL	75	95	55	2.45	10	89	67	85.0	86.4
MAY	74	100	53	6.23	12	92	72	85.4	85.8
JUNE	86	100	65	17.70	25	87	73	84.0	85.1
JULY	82	99	64	12.36	22	87	73	83.4	83.6
AUGUST	72	99	52	6.04	14	91	73	86.3	86.5
SEPTEMBER	76	100	66	19.16	17	88	73	84.4	84.6
OCTOBER	74	100	51	9.73	17	88	73	84.4	84.6
NOVEMBER	74	100	60	12.41	19	88	72	81.4	81.6
DECEMBER	77	96	50	0.59	7	81	62	78.2	78.4
TOTALS	—	—	—	94.23	177	—	—	—	—
MEANS	79.3	99.5	58.6	—	—	87	69	82.7	83.1

22. The following plants and seeds have been introduced and planted at the station during the year :—

(1) *From Trinidad* (through the Plant Quarantine Station). 34 varieties of sugar cane as follows :—

M.28, M.42, M.63, B.2935, B.2931, B.2977, B.3011, B.3013, B.3124, B.3125, B.3127, B.3138, B.3178, B.3234, B.3210, B.3439, D.11/28, D.66/30, D.49/30, P.O.J.2883, C.P.807, N.G.251, Fiji, Groen Duitsch N.G., New Guniea 24, Co.290 C.H.64/21, Uba (India) Uba (Naquin), P.R.803, Oshima, Kavangire, Merthi, Kassoer.

Sweet Potatoes as follows :—

Red Nut, V.52 and Black Rock.

Derris malaccensis var. erecta, D.malaccensis, D. elliptica Dipteryx odorata.

(2) *From the U.S.A.* Tobacco seed, Vegetable seed, Tung Oil seed of the following types, Aleurites montana, A.trisperma, A.Fordii, Alfalfa and Broom Corn.

(3) *From Guatemala.* Jacaranda sp.

(4) Local collections include Arrowroot, Sweet Potatoes, Tobacco, Sugar Cane, Bananas, Fodder and Cover Crops.

(5) *From Australia.* Macadamia Nut.

(6) *From Montserrat.* Sea Island Cotton of the Beaton Strain.

(7) *From India.* Early Patna Cauliflower and Red Globe Onion.

CROPS UNDER TRIAL.

23. Citrus, Sugar Cane, Tung Oil, Tobacco, Ground Provisions, Irish Potatoes, Sea Island Cotton, Marie Galante Cotton, Corn, Temperate and other vegetables.

CITRUS.

24. The Citrus, stock trial, which was started in Octber 1935, has been of great interest and has shown more than average growth. Of particular note are the Genoa and Villa Franca lemons both on the local lemon stock. Marsh Grapefruit also on this stock has shown vigorous growth. Towards the end of the year trees representative of the three types mentioned, produced healthy blossoms so that a small crop is expected during 1937.

25. Other citrus types on the sour orange stock have shown varying ranges of growth, from very good with the Villa Franca lemon, Marsh Grapefruit and Valencia Orange, to poor with such varieties or orange as the Washington Navel and the Parson Brown.

26. Grapefruit as a stock for this area is apparently unsuitable as evidenced by the growth of King Mandarin on this stock. At the same time fair growth has taken place with the Meyer lemon on this stock.

27. Expansion of the experiment took place during the year when Valencia and Temple oranges were planted, both on the sour orange stock. These unlike the other oranges in the experiment have shown fair growth since the planting in July.

SUGAR CANE.

28. With the newly erected factory, the sugar cane industry has received a new impetus. Varieties imported from the Plant Quarantine Station in Trinidad have been planted.

29. Unfortunately these canes arrived in April, one of dryest months, with the result that subsequent growth of the varieties cannot be said to be truly indicative of their capabilities.

30. Several types with known Java parentage have produced vigorous side shoots within nine months of growth.

The most promising varieties to date are :—B.3138, B.3125, B.3013, D.11/28, B.3178, B.3216, B.3439, P.O.J.2883, Co.290, and M.28. Large scale multiplication of these canes is to take place during 1937.

31. The only large scale multiplication of varieties which was possible was of the standard varieties B.H.10 (12), and the P.O.J.2878. It is estimated that approximately 300,000 plants will be available to planters during the early part of 1937.

32. A manurial experiment with the variety B.H.10 (12) has been laid down using treatments as follows :—

(*a*) Control.

(*b*) Sulphate of Ammonia, 1½ cwts. per acre. 3 months after planting.

(*c*) Sulphate of Ammonia with Potash 1½.1. 2 cwts. per acre and applied 3 months after planting.

(*d*) Sulphate of Ammonia, Potash and Basic Superphosphate 1½:1:1; Applied at the rate of 3½ cwts. per acre and 3 months after planting.

TUNG OIL.

33. *Aleurites montana* and *A. trisperma* were sown during the early part of the year and germination took place within one month. *A. trisperma* grew vigorously for the first six months during which time the *A. montana* was inferior as regards the apparent vegetative growth. During the dry spell in August however the *A. montana* outgrew the *A. trisperma* and on subsequent transplanting have appeared to have made a better stand. The most recent observations have shown that the *A. trisperma* stands up to the varying weather conditions better than the *A. montana*.

34. It is interesting to note that the branch formation, due to cutting back in the nursery at the time of transplanting and before lifting, has shown two distinct types. In all instances the *A. trisperma* has formed three of more branches whereas the *A. montana* has produced a solitary trunk, with the result that these latter trees are taller.

35. It has been noted that trees transplanted during the wet months of June, July, September and October, at which time the soil temperature at one foot depth is very high, have in most instances had to be re-supplied. Supplies undertaken during December, and without watering after the actual planting, were however immediately successful. It is to be noted that the rainfall during this month was only 0.59", whereas the soil temperature was only a mean of 78.3 OF.

TOBACCO.

36. Early planting of White Burley types were not successful as the mid-rib formation placed the leaf into a very low class of tobacco. Sowings undertaken during June and September were ruined by the execssive rains experienced during these months. It is hoped to carry out subsequent plantings during September and the later months of 1937. A tobacco flue curing barn was erected during the latter part of 1936 and it is hoped to carry out experiments in producing a cigarette grade of tobacco with Virginia types of tobacco.

BANANAS.

37. The rainfall this year was ideal for Banana cultivation so it was to be expected that the vegetative growth at least of this crop should be above the average. Efficient pruning was carried out in one area to illustrate the comparative differences with varying cultural methods.

GROUND PROVISIONS.

38. With a desire to stimulate consumption of local agricultural produce, a demonstration plot of six varieties of Sweet Potato, four of Yam, five of Peanut with Tannias and Arrowroot, was planted. Some interest was shown and yields are expected to be very high.

39. Irish Potatoes planted during December 1935 gave a fair crop of average sized potatoes.

Results are given in Table I.

TABLE I.

Variety	Country of Origin	Date Planted	Area in Sq. Ft.	Reaping Period	Yield in lbs. per acre
Epicure	Scotland	2.12.35	1,350	17.2.36	2,720
Bliss Triumph ..	,,	,,	,,	,,	7,940
Up-To-Date ..	,,	,,	,,	,,	5,312
Cobbler	,,	,,	,,	,,	4,768
Green Mountain ..	U.S.A.	15.12.35	1,125	19.3.36	3,420

COTTON.

40. During September 1935 the Marie Galante type of perennial cotton was sown. It was unfortunate that heavy rains soon after the sowing date should have continued for eight weeks of the plants growth with the result that the vegetative phase was predominant throughout the life of the plants. Yields as might be expected were very low, being about 35 lbs. clean cotton per acre. Subsequent ratooning during October 1936 should give better returns during the next year.

41. Sea Island Cotton of the Heaton Strain from Montserrat was planted during August, September and October of this year. Due to poor seed the germination was of a very low order with the latter two plantings. The August plantings have shown, however, that this crop holds great promise.

42. Loculi counts were up to standard being 3.6. Further analyses were not carried out due to lack of suitable laboratory equipment.

43. Boll shedding during October was high as the weather was unfavourable at this time of maturity.

44. Among the most serious pests noted on the cotton were the Cotton stainers, Dysdercus sp. It is feared that with the large number of alternative host plants available for this pest, a close season would not benefit in this respect.

45. With the seed reaped from the progeny rows, during this year, it is hoped to have further trails on a larger scale.

COVER CROPS.

46. Realising the harmful effects of continued fallow on soils such as are found in this area of the colony, it has been the aim of the department to establish suitable cover crops for citrus and other crops.

47. Among those types which were tried during the year are :—*Crotalaria anagyroides, C. striata, Tephrosia candida, Calapagonium sp., canavalia ensiformis* and *Stizolobium*. The only really successful cover was the Bengal Bean which in no instance was smothered by indigeneous weeds. It is interesting to note that the Mucuna sp., to which this is closely allied, is prevalent throughout this area.

CORN.

48. Ear to Row selection of local varieties was commenced. Four arbitrary types from the basis of selection. These types which are very heterozygous are found throughout this area of the colony. Imported corn from Trinidad (1935) produced some fine ears with good coloured grains. This variety will be included in subsequent selection work.

49. The yield from 17 acres was 24,000 lbs. dried corn giving an average yield of 1,410 lbs. per acre. This planting was undertaken on the native style for until stumping has been carried out no areas are available which can be given a reasonable amount of mechanical or animal cultivation.

NURSERIES.

50. An area of some four acres was fenced for this purpose during the year and intensive propagation of citrus fruit trees will be carried out during the next year.

51. Small scale trials of vegetables proved very successful the types being, Cauliflower, Cabbage, Beet, Carrot and Tomato, all of which showed that large areas could be grown on a large scale. Pineapples planted during December, 1935 give promise of a very satisfactory yield during the early part of next year.

PRODUCE SOLD DURING THE YEAR.

52. The sum of $106.25 was collected at the Agricultural Station during the year. This sum included the sale of Irish Potatoes, Cabbages, Cauliflower, Tomatoes and Sugar Cane plants, and other miscellaneous produce.

EXTENSION WORK.

53. The Assistant Agricultural Officer was seconded for a time for work in connection with the planting and cultivation of Sugar Cane on one of the estates in the district. Plantations throughout the district were visited. In addition visits were made to Orange Walk, Belize, Punta Gorda and Stann Creek.

H. L. MANNING,
Assistant Agricultural Officer,
Corozal.

16.2.37.

SECTION V. (C).

REPORT ON RICE STATION AND DISTRICT PUNTA GORDA, FOR THE YEAR 1936.

DISTRICT.

1. The year was unusually wet. Early rains restricted clearing operations but in spite of this there was considerable increase in the area under Bananas. Heavy rains followed by short, dry spells proved ideal for froghoppers but disastrous to grain crops and made several resowings of corn, rice and beans necessary.

2. Increase in the number of ditches seen, the practice of light forking and the number of enquiries received seem to point upwards to an agricultural awakening. The advent of several West Indies planters from the neighbouring Republics ; the number of applicants for permanent holdings (upon which the establishment of a thriving peas and proprietary solely depends)and the anxiety with which the progress of the Punta Gorda–San Antonio Road is being followed support this view.

BANANAS.

3. 247,534 stems of Bananas valued at $74,634.34 were shipped during the year as against 160,000 stems valued at $49,676.00 for 1935 and 90,541 ($27,162.30) for 1934. Of this trade Monkey River and vicinity supplied 25% and the Punta Gorda–Sarstoon area 75%. The United Fruit Company handled 85% of this trade; Schooners and Motor Boats did the remaining 15%. The question of a suitable contract is now occupying the attention of many planters. But for one or two minor holdups planters had not much difficulty in disposing of their fruits but many have still to learn not only how to cultivate but also how to cut and handle this crop.

4. The craze for new lands, however far removed, is still the ambition of many so that transportation is an ever increasing factor.

5. Panama Disease is on the increase. The writer's expressed opinion (*vide* 1935 Annual Report) that Sigatoka Disease was present in the district was confirmed during the year and the necessary control measures advocated. With conditions as at present, it seems precarious to leave protective measures to the whim and caprice of the individual planter who hardly ever regards pests and dieases as other than visitations of Providence against which Science cannot avail. The following figures show the quarterly sales for 1935 and 1936:—

QUARTER	1935 STEMS	1935 VALUE	1936 STEMS	1936 VALUE
March	29,192	$7,043	34,947	$9,888.05
June	35,635	12,128	49,227	15,042.00
September	46,823	16,000	80,923	24,395.00
December	48305	14,505	82,437	25,309.29
TOTAL ..	160,000	$49,676	247,534	$74,634.34

RICE.

6. There was a reduction in the acreage grown due chiefly to causes already mentioned and to the rapid increase in Banana growing. Ten planters tried out No. 79—a medium grain variety from British Guiana—with fair success.

7. Reaping with the grass-knife was practised by many whilst the presence of a Mechanical Thresher, recently imported by the Board of Agriculture proved a boon to those who had perforce to reap in heavy rains.

8. Transportation charges have been against several who, as in the above crop, insist on wandering afar for 'new' lands every year on which to grow this crop rather than putting in some energy and cultivating the old plots nearer home and market.

9. A minor set-back to Banana growing caused many to awaken to the possibilities of this cereal and attempts are being made to get suitable low lying lands for permanent cultivation. Financial assistance has also been sought.

SUGAR.

10. The Froghopper Blight did much damage to this crop and one holding has practically been abandoned. Cymag was used on two estates with fair success. Improved cultivation to improve the health of the cane and the texture of the soil was advocated. Only four mills ground during the year.

CORN AND BEANS.

11. Several resowings were found necessary owing to unfavourable weather conditions and the ravages of pests in the early part of the year yet a good

corn crop was reaped by those who were able to plant early. Many took advantage of the price of $2.00 per 100 lbs. offered by the Board during the last quarter of the year and sold their stock. In the early part of the year there was a marked shortage of both commodities and prices soared.

CITRUS.

12. An attempt to establish a Citrus Grove was launched during the year.

COCONUTS.

13. A few palms died from attacks by the Cohune Beetles. The peculiar branching of an adult palm has been noted and photographed.

LIVESTOCK.

14. There has been no marked increase in Livestock rearing. During the year a few head of cattle were lost by one planter chiefly through poor pasturage. The Indians of San Antonio and Columbia continue to be the chief producers of pigs.

PESTS AND DISEASES.

15. Twenty-three—7 lb. tins of Cymag were sold to sundry planters and others in the fight against the WEE-WEE ANTS (Atta spp.) and the Froghopper (Tomaspis sp.) Spraying with Bordeaux Mixture for the control of the Sigatoha (New Leaf) Disease of Banana was carried out on a few farms and control measures for Panama Disease (undoubtedly on the increase) regularly advocated.

CO-OPERATION.

16. An effort at uniting the planters for their mutual benefit and advancement was launched during the year. Indications, however, do not seem favourable as the objects seem too commercial and far-reaching at such early stage of its existence. Such co-operative measures if properly handled, will, undoubtedly, lead to 'community' action in regards to tillage, finance, marketing etc., but co-operation for the protection of any single crop especially if there be any attempt to 'dabble' in commercial undertakings at its inception, will, under present conditions assuredly fail to achieve its aims.

THE RICE MILL.

17. Forty-eight thousand four hundred and thirty pounds of padi were purchased from planters at 1½ per lb. Of this amount 41,197 lbs. were from the 1935 crop thus bringing the total purchases for the 1935 season to 89,627 lbs. 174 bags of 224 lbs. each of milled rice were produced all of which were sold locally except 45 bags shipped to the Belize Mill ; 5,589 lbs. of Bran, 460 lbs. of broken ends were readily disposed of after samples introducing these by-products to Stock-owners were distributed.

18. A few minor accidents held up drying operations but an accident to the Winnowing Aspirator in the Mill on the 28th February stopped milling altogether and the balance of padi was shipped to Belize. 1,216 lbs. of padi were loaned to planters ; 603 lbs. of this is still outstanding (313 lbs. from 1935).

19. Eight thousand six hundred and thirty-eight pounds of corn were bought at an average price of $1.50 per 100 lbs. from the 1936 crop and 9,500 lbs. bought from the previous crop disposed of.

20. Forty-five pounds of R.K. Beans were also handled. Some of the corn bought was lost through lack of a concrete drying floor where doubtful small lots bought could be aired before storing. It is hardly necessary to emphasise the importance of such a floor.

21. It may be of advantage in the fight against weevils which proved very destructive, to mill rice in small quantities to meet the demand.

22. The building was strengthened in places but appears to need some more attention. It is hoped to get better results from the Compartment Separator which has had to be levelled. A proper roadway is a necessity and concrete drains will help to keep the surroundings in a more sanitary condition as the present type of drains are easily trampled in by the horses and mules grazing on the Compound.

23. Two demonstrations on 1st and 21st August respectively were given at the Mill for interested planters to see the Thresher at work. This machine was obtained from Messrs. Barclay, Ross and Hutchison, Aberdeen, Scotland; is driven by a 5 H.P. Diesel engine and is capable of turning out 1,200 lbs. of clean padi per hour. 11,925 lbs. of padi were threshed for individual planters at the rate of 15¢ per 100 lbs.

24. The Revenue earned during the year is as follows:—

Sale of 174 bags of rice (224 lbs. per bag)	$558.98	(45 bags shipped to Belize excluded).
Sale of Corn 8,643 lbs. ..	126.15	
Sale of Bran 5,589 lbs.	25.33	(4 bags to Belize and one to Stann Creek excluded).
Sale of Broken ends	7.30	
Sale of R.K. Beans	2.02	
Threshing fees	17.86	
	$737.64	

THE RICE EXPERIMENTAL AND DEMONSTRATION STATION.

25. The following improvements were effected during the year:—

Septic Tank for Officer-in-Charge; Quarters for Temporary Local Assistant; Pumping Plant, Reservoir and pipelines laid, a Telephone installed, a Motor Lorry acquired; a partly finished Garage for same and two Bridges built. It is hoped to build a suitable Office during 1937 so that important investigations now held over through locak of space and suitable convenience may be proceeded with.

METEOROLOGY.

26. Rain fell on 274 days with a total preciptation of 192,04 inches. July was the wettest month with a preciptation of 45.01 inches for 30 days. The 27th of June with 10.34 inches proved the wettest day; February 14th the hottest (95.OF in the shade) and the evening of January 23rd the coldest with 53.OF. The accompanying table shows the monthly rainfall, temperatures, and Relative Humidity was recorded for the year:—

MONTH	Relative Humidity Average Monthly Mean	Highest %	Lowest %	Shade Temperatures Mean Daily Max. (F)	Mean Daily Min. (F)	Rainfall Inches	Rain days
January ..	80.	88.	73.	85.3	64.1	7.53	23
February ..	75.	92.	71.	77.2	69.9	7.97	14
March ..	79.	89.	70.	82.7	66.3	1.70	11
April	77.	91.	60.	86.8	68.4	6.16	16
May	82.	98.	72.	87.0	69.6	12.87	26
June ..	82.	91.	57.	89.3	87.9	36.02	25
July	82.	100.	74.	87.3	71.6	45.01	30
August ..	79.	91.	73.	88.4	73.0	18.89	27
September ..	81.	91.	70.	87.9	72.2	21.22	28
October ..	88.	98.	72.	86.9	70.2	17.73	26
November ..	85.	97.	72.	79.4	68.6	10.70	27
December ..	79.	93.	64.	81.0	73.0	6.24	21
Mean ..	81	93	64	84.9	71.2		
Total						192.04	274

PADI CROP.

27. All the varieties grown during the last year were repeated along with three types selected by the Agricultural Officer but which proved similar to types already selected locally by the Officer-in-charge. Six acres of new lands were brought into cultivation. The work of clearing and conditioning for ploughing by oxen proved irksome and expensive in the absence of a Tractor of our own. For the third year in succession a crop was reaped from the same fields with satisfactory results and without manuring nor crop rotation being practised. Three ploughings made the usual necessary after weeding of growing crops a negligible factor; with close planting this was not at all necessary. The extra ploughing proved cheaper than weeding.

28. The various methods tried out were:—

(i) Dibbling seeds and seedlings in unploughed and partly ploughed i.e. one ploughing and whenever practicable harrowing.

(ii) Transplanting under 'dry' and 'wet' conditions in partly ploughed and ploughed (at least two ploughings) fields.

(iii) Sowing broadcast in partly ploughed fields. Table I gives the results in full.

29. Demerara Creole and H.7 proved consistent yielders for the past three seasons but through length of grains have been superseded by No. 79, whose size of grain seems to conform more to the demand of the local market, in extension work among the planters. Lead, however, seems yet more appropriate in yield and shape of grain as the barley type or rice seems to be the craze of the local market. This variety and D114 are to be further tried out before any attempt at distribution will be made.

30. VARIETY TRIALS:—Three trials were laid down as follows:—

(a) Dibbled (2) Ten varieties in plots 1/640th acre each and surrounded by strips of eliminate border effects.

(b) Transplanted. One plot of Nine Varieties as above.

(c) Transplanted. One plot of six varieties; plots 1/160th acre in extent.

Heavy storm water the day after sowing occasioned the mixing of some of the varieties as division slats were washed away and labels carried off. This resulted in curtailment of the original programme as seedlings required were not available in sufficient quantities. Heavy rogueing before reaping was found necessary to offset the damaging effects of this untimely deluge. It is hoped to avoid a recurrence by increasing the number of empoldered plots so that each variety will be confined to its own protected nursery.

31. Table II shows the results obtained. Kalyaman, a long thin type of grain leads when 'dibbled'. Ramcajara, a medium grain and No. 29 (medium grain from I.C.T.A., Trinidad) leads in the 2nd whilst No. 79 another medium type proved the best in the last trial. B. H. Creole on account of its earliness suffered greatly from attack of birds in No. 2 trials.

OTHER CROPS.

32. The trial plots under Bananas—Gros Michel, Lacatan, and Cavendish received some attention during the year A manurial trial with Niciphos 11 and Nitrochalk was laid down. Spraying with Bordeaux Mixture for the control of Sigatoka Disease was also done.

33. Twenty-seven Tung Oil Plants (*Aleurites trisperma* and *A. montana*) planted out in June made fair progress; A. montana seems to be ahead of A, trisperma in growth.

34. Seeds of Tonca Beans (*Dipteryx odorata*, Wild) received from Trinidad did not make good progress, only two plants surviving from the six which germinated. Queensland Nuts (*Macadamia ternifolia*) set out in August have not germinated yet.

35. Trials with Red Kidney Beans, Black Beans, Black Eye and Cowpeas were continued during the year. The plot of Smooth Cayenne Pineapples was extended.

COVER CROPS.

36. Crops of Bengal Beans (*Stizolobium alterinum*); *Tephrosia candida, T. volgellii; Crotalaria striata* and *C. anagyroides* were again tried out.

SEED DISTRIBUTION.

37. Thirty-seven thousand seven hundred and sixty-one pounds of seed padi were loaned to planters; 61 lbs. of Local Creole and 700 lbs. of No. 79. Cuttings of Guatemala Grass (*tripsacum laxum*) and *Hibiscus sinensis;* slips of Smooth Cayenne pineapple; seeds of *Crotolaria* and *Tephrosia* and Cowpea were distributed free.

38. The following is the Revenue earned during the year.

Sale of Seed Padi (85 lbs.)	$1.70
Sale of Padi (10,935 lbs.)	164.01
Sale of Bananas (200 stems)	62.20
Sale of Yams (50 lbs.)	1.00
	$228.91

VISITORS.

39. H. E. the Governor and Lady Burns visited on 23rd March. Other visitors included the District Commissioner, the Director of Public Works, the Auditor, the Superintendent of Police and Customs, Colonel Jocelyn of the Boys' Brigade, London, Rer. Fr. Muntsch of the St. Louis University, U.S.A., and several other private individuals and neighbouring planters.

40. Field Days were held on 1st August, 6th and 7th November and the 8th December when several planters attended and learnt something of the nature of the work in hand. A party of school boys under the headmaster of the Punta Gorda Wesleyan School visited on the 10th November and received practical lessons in the reaping of the Rice Crop. The field day on 8th December was held specially to instruct planters on the appearance and Control of the Sigatoka Leaf Disease of the Banana.

The Agricultural Officer lectured fully to those present.

TOURS AND INSPECTIONS.

41. Visits were paid to all the leading farming centres in the district and instructions given in 'Cultivation Methods and Practice'; Pest and Disease Control; Marketing and so on whilst every effort was made and every opportunity siezed to encourage the growing of Rice and discourage the prevailing tendency of sacrificing every other agricultural crop to Bananas.

42. On the invitation of the absentee proprietor a report on the condition of his holding was prepared.

(Sgd.) Danl. D. Haynes,

Agricultural Instructor.

TABLE I.

COMPARATIVE STATEMENT OF BANANA SHIPMENTS BY AREAS. 1933-1936.

BUNCHES.

AREA	1933		1934		1935		1936	
	United Fruit Company	Schooner	United Fruit Company	Schooner	United Fruit Company	Schooner	United Fruit Company	Schooner
Belize	11,328	—	26,481	—	37,152	—	134,062	—
Stann Creek	31,589	—	89,081	—	108,961	—	134,144	—
Mullins River	1,981	—	6,037	67,059	5,127	28,556	8,774	143,923
Commerce Bight	661	—	3,619	—	3,927	—	11,093	—
Sittee River	9,100	—	10,474	—	12,333	—	16,597	—
Monkey River	22,457	—	749	—	70,183	—	61,928	—
				31,453		33,494		80,984
Punta Gorda	—	—	9,339	—	56,323	—	104,622	—
Total	77,116	64,546	194,780	98,512	294,006	62,050	471,220	224,907
Combined Total ..	141,662		293,293		356,056		696,127	
Value $	48,239		93,721		125,274		244,238	

TABLE I.

VARIETIES	SHIED.		DIBBLED.		TRANSPLANTED DRY.		TRANSPLANTED SWAMP.	
	Padi lbs. Reaped	Padi lbs. per acre	Padi lbs. Reaped	Padi lbs. per acre	Padi lbs. reaped	Padi lbs. per acre	Padi lbs. reaped	Padi lbs. per acre
*B. H. Creole	100	745	128	992	25	1,200	—	—
No. 79	1,000	1,682	1,800	1,936	1,200	2,420	1,050	2,310
D. C.	500	1,921	900	1,646	600	2,904	650	2,420
H. 7	70	1,800	100	1,700	30	2,080	33	2,420
Ramcajara	—	—	50	1,850	25	1,280	46	3,020
No. 29	200	1,920	200	1,750	150	2,600	22	3,700
Upland	—	—	250	1,900	100	1,850	14	2,500
Kalyaman	—	—	—	—	20	1,720	38	2,500
Bluestick	—	—	50	1,920	25	1,620	18	2,400
McKenzie Large	—	—	—	—	21	840	—	—
Kristna Kata Kulu	—	—	—	—	—	—	26	1,900
D. 114	—	—	15	—	56	2,240	25	3,000
Lead	—	—	12	—	15	2,950	25	2,500
No. 75	—	—	20	1,720	—	—	19	2,500
No. 78	—	—	—	—	—	—	18	3,500
H. 6	—	—	—	—	—	—	25	3,000
TOTAL	1,870	—	3,525	—	2,267	—	2,009	—

*REMARKS—Early and damaged by birds.

TABLE II. VARIETY TRIALS.

(a) *DIBBLED.*

Layout.....Two 10 x 10 Latin Squares.

Varieties	Padi lbs. per acre	Order of Merit
B. H. Creole	1,600	2nd.
McKenzie Large	1,600	2nd
No. 29	1,500	3rd.
Demerara Creole	1,600	2nd.
No. 79	1,408	4th
Blue Stick	1,600	2nd.
Upland	1,504	3rd.
Ramcajara	1,600	2nd.
H.7.	1,248	5th.
Kalyaman	1,696	1st.

(b) *TRANSPLANTED.*

Layout.....One 9 x 9 Latin Square.

Varieties	Padi lbs. per acre	Order of Merit
Demerara Creole	1920	5th
No. 79	1,493	6th
Upland	1,849	4th
Ramcajara	2,204	1st
Kalyaman	2,062	3rd
McKenzie Large	1,422	7th
Blue Stick	1,493	6th
B.H. Creole	960	8th
No. 29	2,133	2nd

(c) *TRANSPLANTED.*

Layout.....One 6 x 6 Latin Square.

No. 79	2,240	1st
D. 114	1,387	5th
McKenzie Small	1,467	3rd
H. 7	1,200	6th
Upland	1,389	4th
Demerara Creole	1,920	2nd

TABLE II.

EXPORTS OF COCONUTS AND COPRA.

COCONUTS.

	1932	1933	1934	1935	1936
Number	2,974,220	3,610,450	5,232,861	6,589,320	4,310,110
Value	$24,860	$32,367	$64,855	$96,515	$63,930
Approximate average .. Value per 1,000 ..	$8.35	$8.96	$12.39	$14.64	

COPRA.

Pounds	995,704	812,233	332,883	5,230	425,996
Value	$14,700	$11,742	$5,010	$52	$10,456
Approximate average .. Value per 100 lbs. ..	$1.48	$1.43	$1.50	$0.99	$2.45

TABLE III.

EXPORTS OF CITRUS FRUITS AND CANNED AND JUICED FRUIT.

ARTICLE	1933		1934		1935		1936	
	Quantity Cases	Value $	Quantity cwt.	Value $	Quantity cwt.	Value $	Quantity cwt.	Value $
Grapefruit	5,094	13,462	13,400	33,569	15,450	32,280	18,781	41,177
Oranges	420	967	2,143	1,896	1,595	1,720	291	527
Tangerines	62	154	197	478	117	219	181½	326
Gr pefruit Canned ..	—	—	15,904 lbs.	1,180	39,104 lbs.	1,999	158,531	8,381
Grapefruit Juice	—	—	14,300 lbs.	500	4,706 lbs.	156	68,494 lbs.	2,703
Total Value ..		$14,583		$37,623		$36,374		$53,114

TABLE IV.

PADI PRODUCTION BY AREAS 1936.

AREA	1933 (lbs.)	1934 (lbs.)	1935 (lbs.	1936 (lbs.)
Belize River—below Big Falls including Black and Spanish Creeks ..	95,500	137,572	73,754	21,547
Belize River—above Big Falls	518	11,019	19,614	5,198
Sibun River	5,785	4,272	13,333	5,402
Manatee	2,912	4,669	5,506	197
Stann Creek	1,531	—	—	—
ort hern River	945	—	593	—
Corozal District	1,366	—	555	—
Orange Walk District	10,129	3,118	2,690	203
Monkey River	—	34,944	9,053	7,276
Punta Gorda	—	91,818	48,088	23,340
Rio Grande	58,160	4,438	6,672	8,295
Temash, Moho and Sarstoon Rivers ..	—	4,388	11,132	8,458
New Haven	—	—	656	1,061
	176,846	292,238	193,218	80,977

TABLE V

1 9 3 6.

AGRICULTURAL PRODUCE.

EXPORTS

PRODUCT	Destination	Quantity	Value $	% by value of All Agricultural produce 1936	% by value of All Products 1936
Coconuts (No.) ..	U.S.A	4,130 110	60,630		
	Holland	180,000	3,300		
	Total	4,310,110	63,930	16.9	5.1
Copra lbs.)	Mexico	425,9 6	10,456	2.7	.9
Bananas Bchs)	U.S.A	696,127	244,238	64.8	19.8
Plantains (No)	U.S.A	193,200	2,274		
	Cayman Is.	5,000	40		
	Total	198,200	2,31		
Rum (Gallons)	Cayman Is.	4,139	4,234		
	U.S.A.	17	8		
	Total	4,156	4,242	1.1	.3
Grapefruit (cwt.)	U.K.	12,157	27,379		
	Canada	5,803	12,101		
	Bermuda	821	1,697		
	Total	18,781	41,177	10.8	
Oranges (cwt).	U.S.A.	17	31		
	Canada	266	481		
	Bermuda	8	15		4.2
	Total	291	527	0.1	
Tangerines (cwt.)	Canada	134	249		
	Bermuda	47½	77		
	Total	181½	326	0.1	
Grapefruit Canned (lbs.) ..	U.K.	72,537	3,879		
	Canada	85,994	4,502		
	Total	158,531	8,381	2.2	
Grapefruit Juice (lbs) ..	U.K.	68,494	2,703	0.7	
				100.0	30.5

Total Value of Agricul ural Exports	$378,294	30.5%
Total Value of Forest Produce	$856,613	69.5%
Total Value of Marine Produce	$ 5,960	.4%
Total Value of All Exports	$1,240,867	100.0